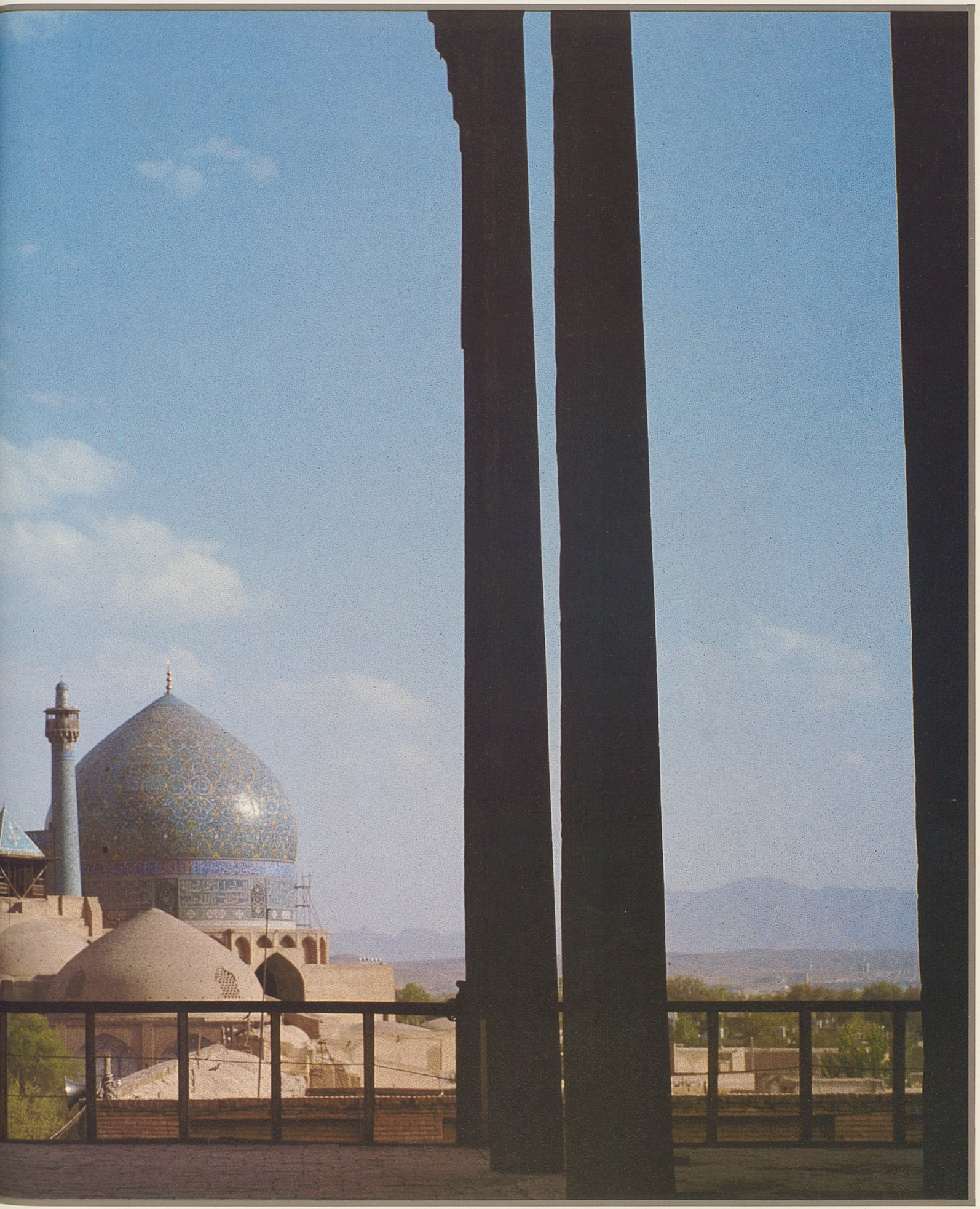
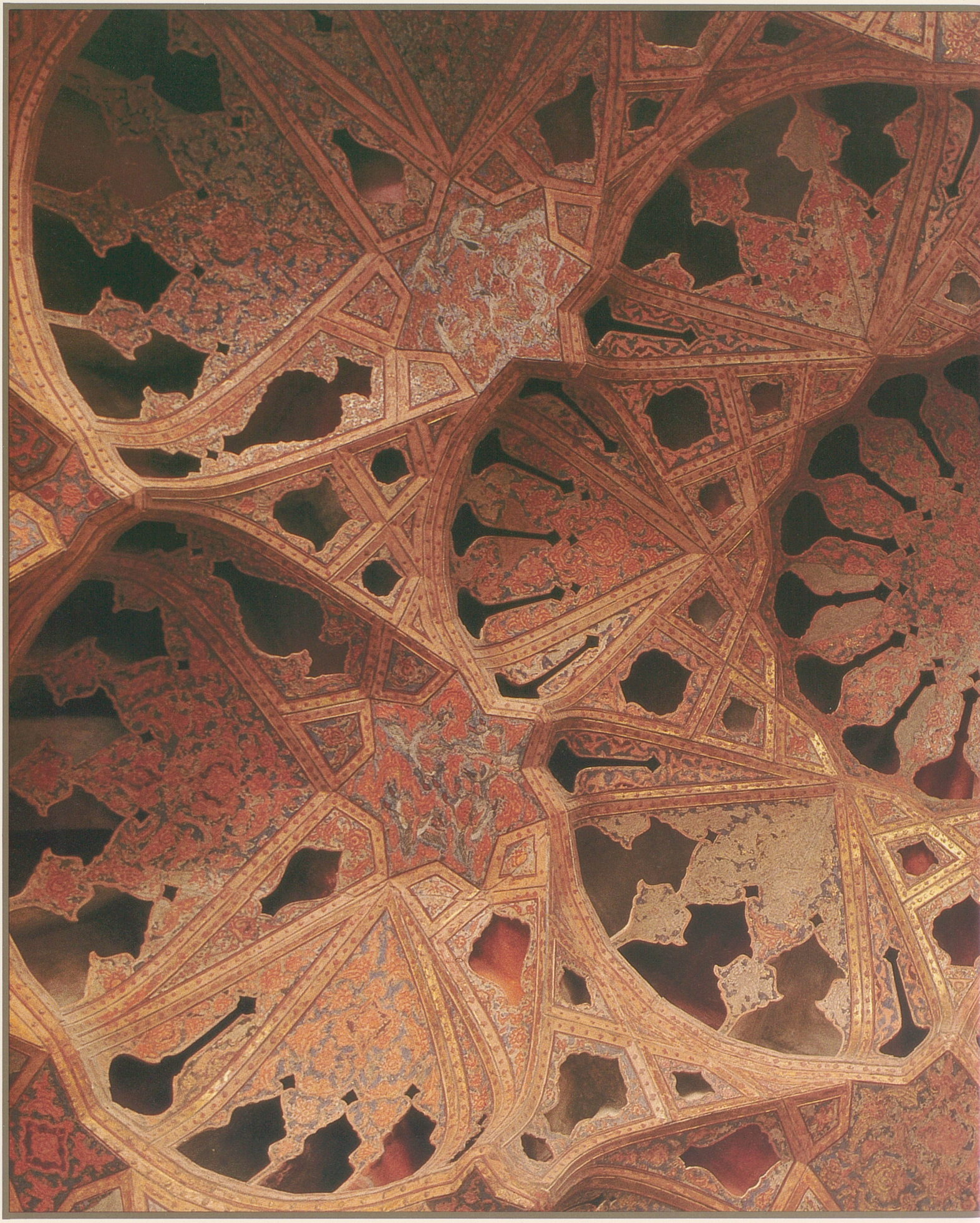
RESTORATION OF THE ALI QAPU, CHEHEL SUTUN AND HASHT BEHESHT ISFAHAN, IRAN

MAJOR RESTORATION COMPLETED 1977



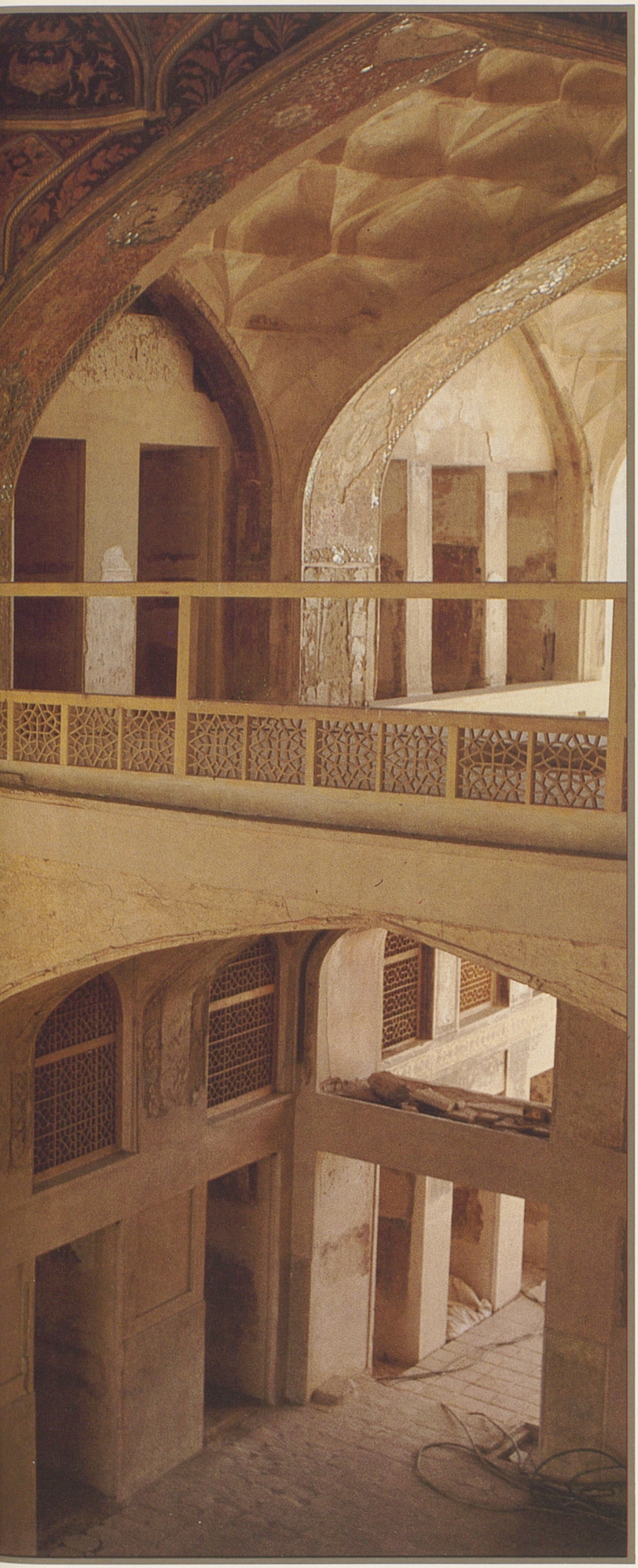
View from the *talar* of the Ali Qapu.

View of the *talar* and the adjacent north facade of Chehel Sutun.



Ceiling of upper story in the Ali Qapu.

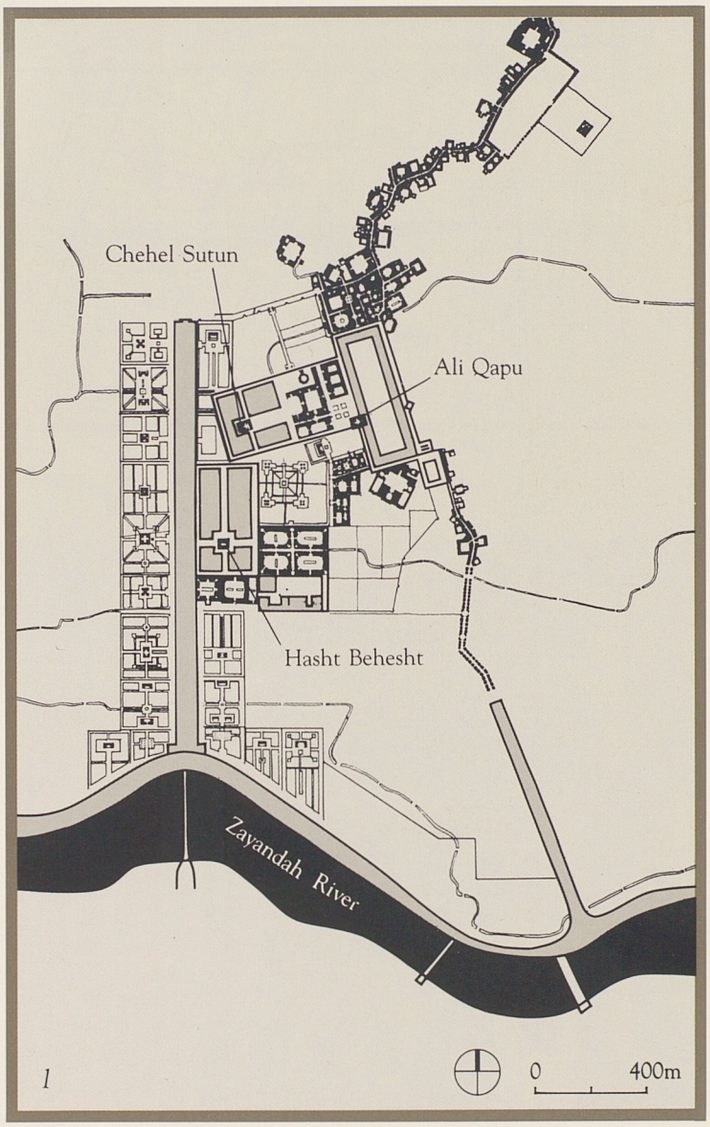
View of restored inner hall of Hasht Behesht.



RESTORATION OF THE ALI QAPU, CHEHEL SUTUN, AND HASHT BEHESHT. Client: National Organisation for Conservation of Historic Monuments of Iran (NOCHMI), Dr. Bagher Shirazi; Restoration: Istituto Italiano per il Medio ed Estremo Oriente (ISMEO), Eugenio Galdieri.[1]

The contemporary city of Isfahan has surrounded the historic core and has gradually eaten into it with new roads, increased traffic, electric wires, neon signs, and new construction. Nevertheless, much of the dramatic, world-famous layout of the sixteenth- and seventeenth-century capital can still be discerned. The great maidan, the Maidan-i-Shah, and its monuments, the Masjid-i-Shah, the mosque of Lutfullah, the Ali Qapu and the monumental entrance to the Qaisariyya Bazaar, form one major ensemble of the capital. The second is the great garden avenue of the Chahar Bagh and its flanking palace gardens, but these remain in their most general aspects only. The two areas are contiguous and have been proposed as a great city park with cultural and commerical activities, religious monuments, greenery, and open spaces. Though the fi-

1. Historic Isfahan. The Safavid city was built adjacent to the earlier medieval town.



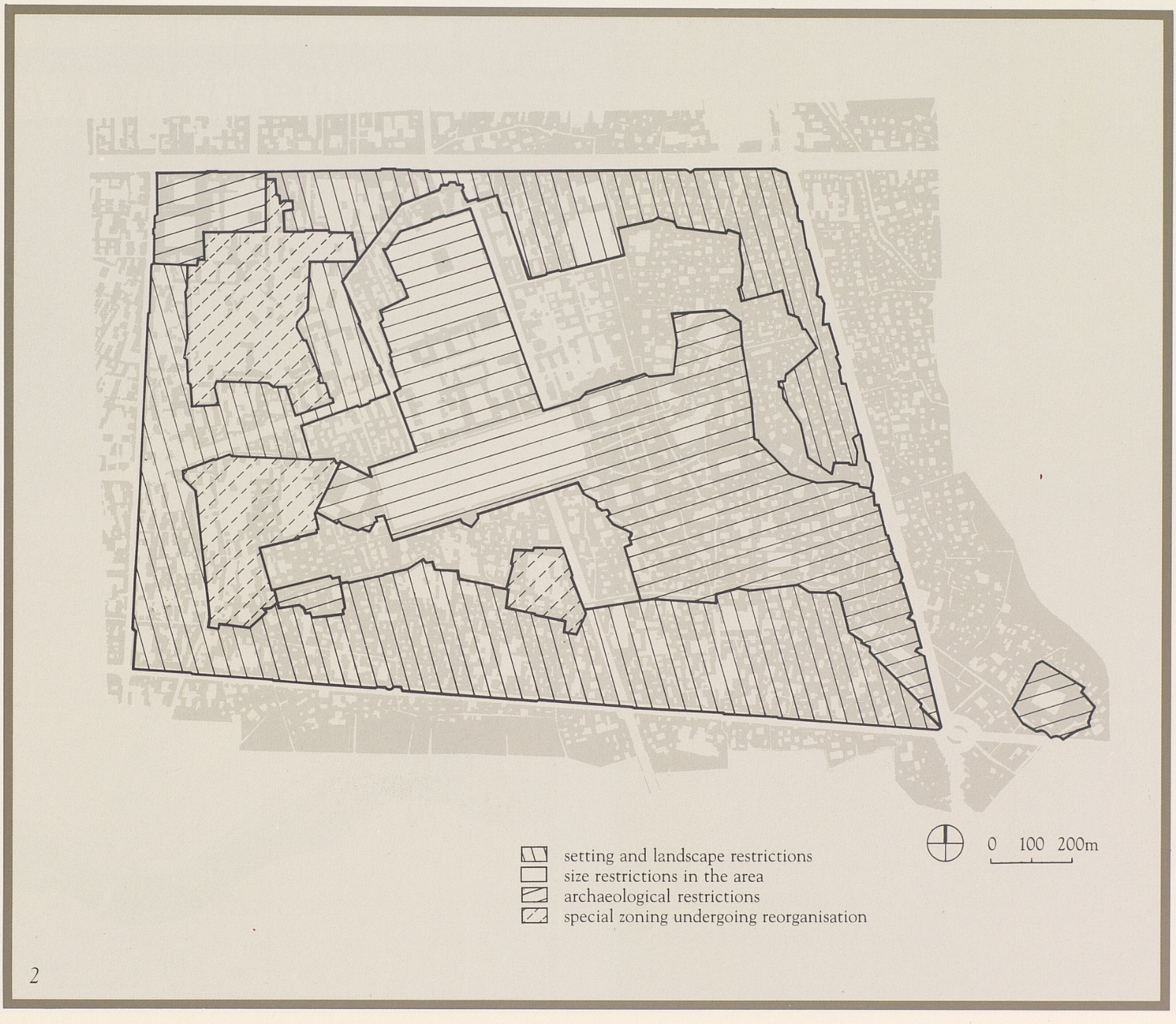
nal implementation of such a scheme is still in the future, the key elements are already in place.

In 1964, Iranian authorities in charge of the conservation of historical monuments were concerned with the dangerous state of deterioration of Ali Qapu. A decision was made to call in Italian experts associated with the Istituto per Studii Medio e Estremo Oriente (ISMEO). Out of this initial meeting, there developed a fifteen-year programme of collaboration that resulted in the restoration of Ali Qapu, Chehel Sutun, and Hasht Behesht, three palace pavilions of the seventeenth century, in the partial rehabilitation and restoration of the peripheries of the great maidan, in the designation of a protected historical zone, in the publication of major new studies on Safavid architecture, and most importantly in the training of Iranian restoration experts.[2]

At the instigation of ISMEO, the National Organization for the Conservation of Historical Monuments of Iran (NOCHMI) established its own construction department to ensure a stable and increasingly well-trained work force and to avoid difficulties with individual contractors. The restoration program thus developed its own specialists in masonry, plastering, carpentry and woodworking, mirrorwork and the like. At the same time, the students of the School of Fine Arts were assigned restoration work, particularly that of the painted decoration, as part of their curriculum. More than one hundred certificates of collaboration were given out by ISMEO and nineteen young specialists received advanced training in restoration in Italy. The young specialists (architects and archaeologists) employed by NOCHMI had the unparalleled opportunity to collaborate on and then take charge of various apsects of this restoration program.

Ali Qapu. Standing 30 metres high on the west side of the maidan, the gate pavilion consists of a square, three-storey core and a series of additions, the most notable of which is the second-storey portico or *talar.* Built in several stages between 1597 and 1668, the building served as monumental gatehouse

2. A master plan for the conservation and rehabilitation of the historic core of the Safavid city of Isfahan.



2

to the palace precinct and as a reception pavilion and reviewing stand. Its splendid painted and punctured *muqarnas* ceilings of the upper levels totally cover a very light and elastic structural system of thin vaults cross-braced with vertical diaphragms and with wooden beams and pillars.

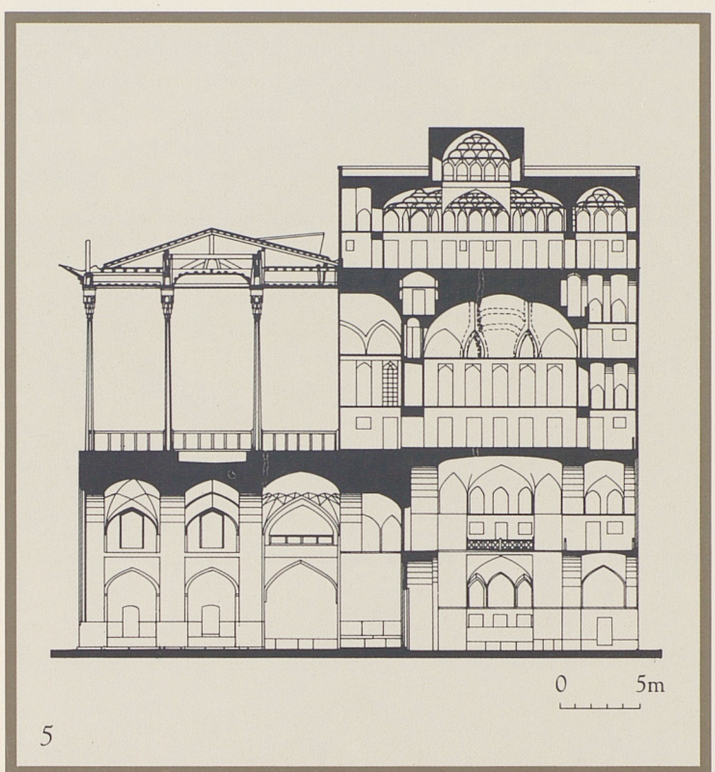
Extensive analysis completed in 1966 indicated that the building had suffered a seismic shock some years before. The damage produced two major cracks along a north-south line and was threatening to split the building apart. The rotation and lowering of the pillars of the *talar* caused the more serious of the secondary mechanical damages. The wooden skeleton of the building was in very poor condition. Its structural capacities were greatly diminished through rot or infestation by parasites. The foundations of the building, particularly those below the *talar,* had settled because the latter's original horizontal roof had been replaced by a low-pitched one, too heavy for the light skeleton of the building.

Restoration work proceeded with a clearly enunciated plan, according to the 1964 Charter of Venice of the II Con-

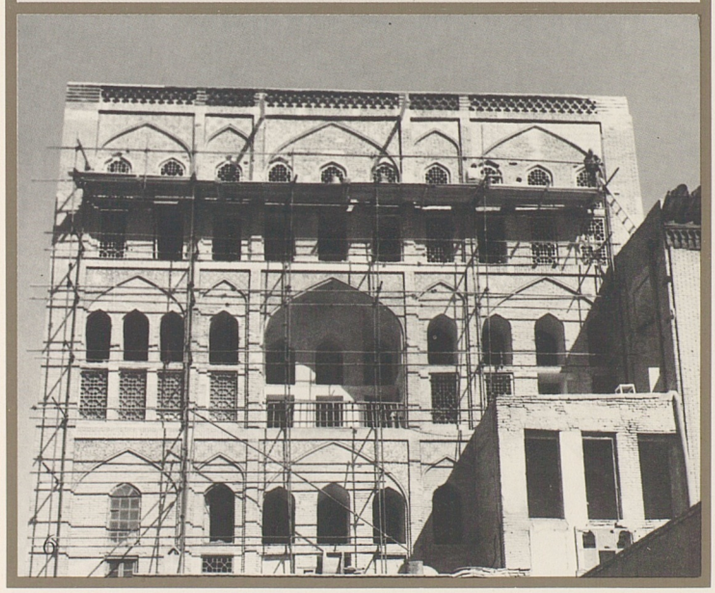
3

4

3. A segment of the restored peripheral bazaar of the maidan.
4. Ali Qapu. Main facade on the maidan.
5. Ali Qapu. Transverse section showing main areas of structural restoration work.
6. Ali Qapu. South facade under restoration.



5

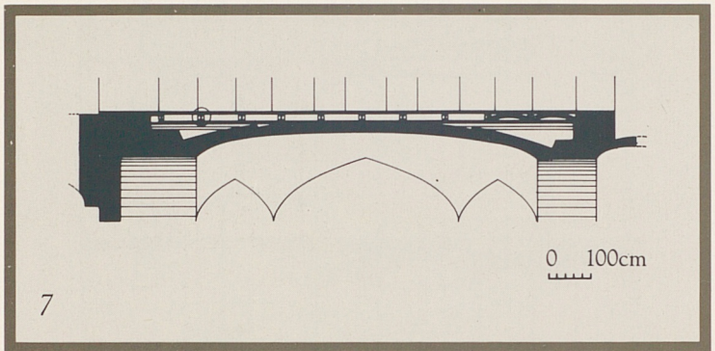


6

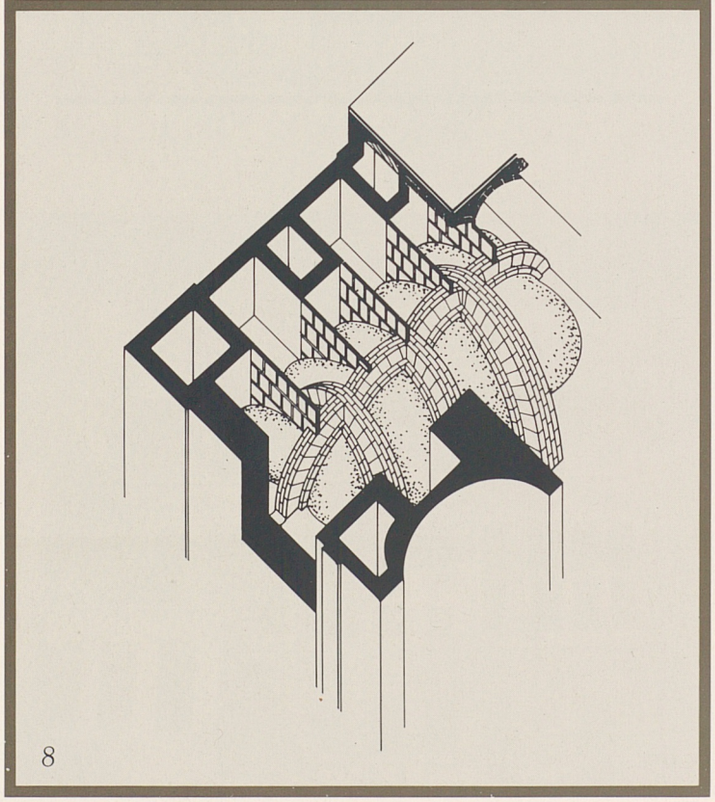
gress of Architects and Technicians of Historic Monuments. Structural damages were repaired first, and with as many of the original materials as possible, before proceeding to the restoration of the surface. The footings of the building were increased twenty-seven percent. The large ground-floor vault was consolidated by a stiffening diaphragm of arches. Vaults, pillars, and masonry on the upper levels were strengthened. Vertical loads over vaults were transferred to horizontal wood or steel beams and tie rods. Cracks were repaired with a special resistant cement. The painted surfaces were cleaned and reinforced and retouching was kept to a minimum to make clear to the visitor where there had been any restoration. The restoration of the Ali Qapu entailed research into the materials of the building, a detailed survey of its structure and the further collection of data from old photographs and written sources. During the process of this programme, clear evidence was produced on the several phases of the construction of the building and their relative dates.

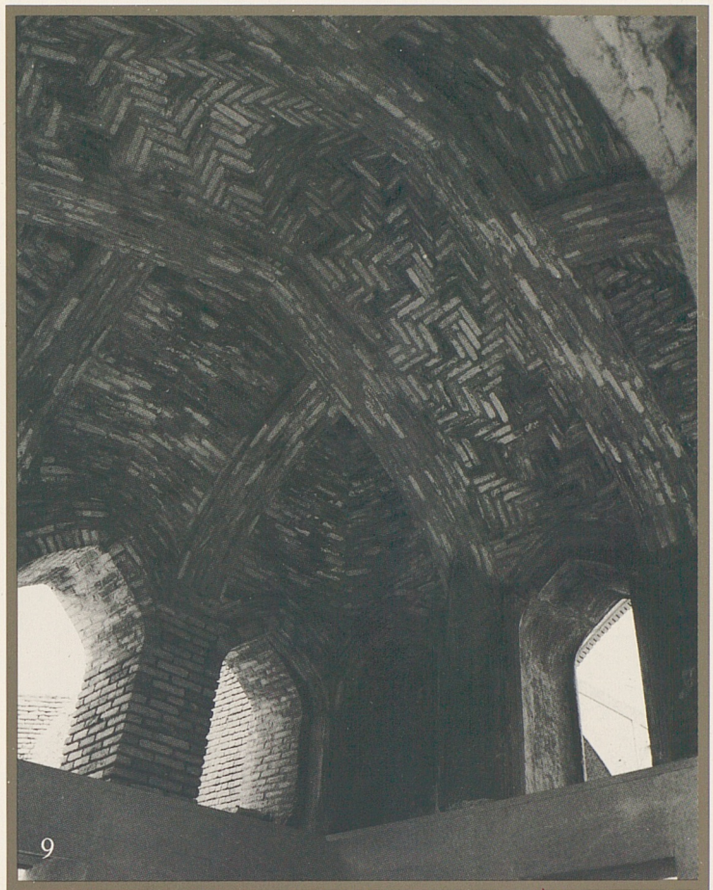
Three years after the beginning of work on Ali Qapu a proposal was made for the restoration and rehabilitation of the peripheral bazaar, for the restoration of the spatial and functional qualities of the maidan and for the improvement of the urban and historical character of the immediate area. By 1978, part of the work, the restoration of the peripheral bazaar and the cleaning of the monumental entrance to the Qaisariyya, were partially completed.

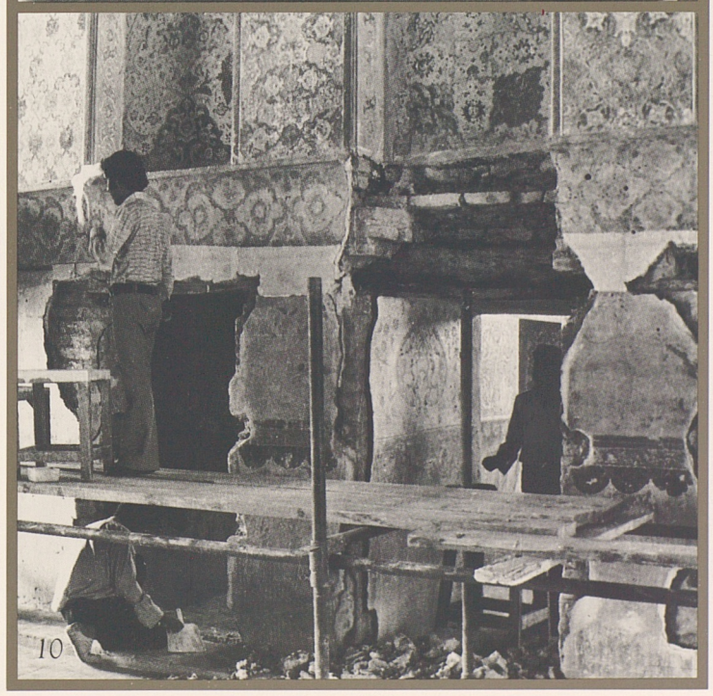
7. Restoration detail of steel structure to support talar.
8. Axonometric showing masonry diaphragms which were added to stabilise vaults.
9. The vaulted structures of Ali Qapu were extensively damaged by earthquakes and the wood tie rods were infested by termites. The first step in restoration was structural reinforcement of the building—here, rebuilt vaults.
10. Ali Qapu. Restoring painted surfaces, 1973.

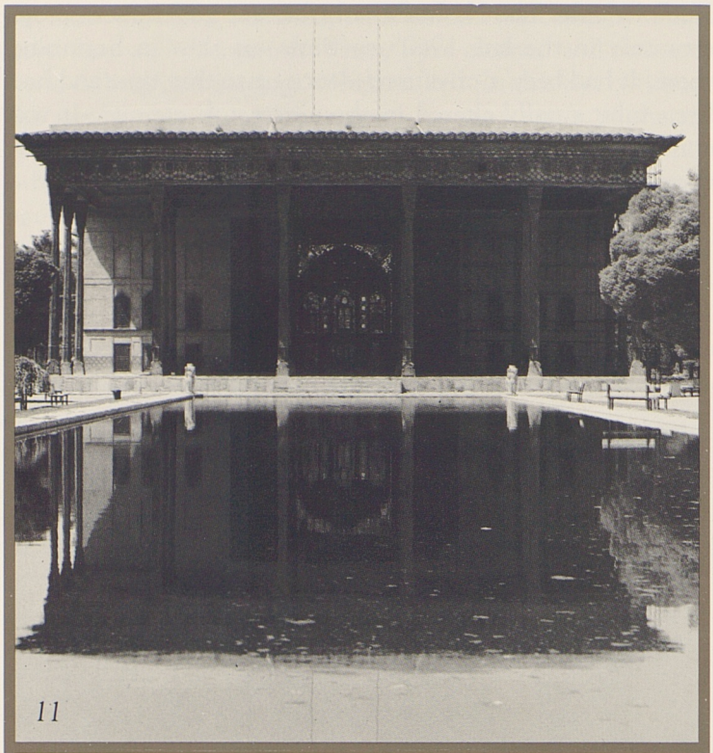


7

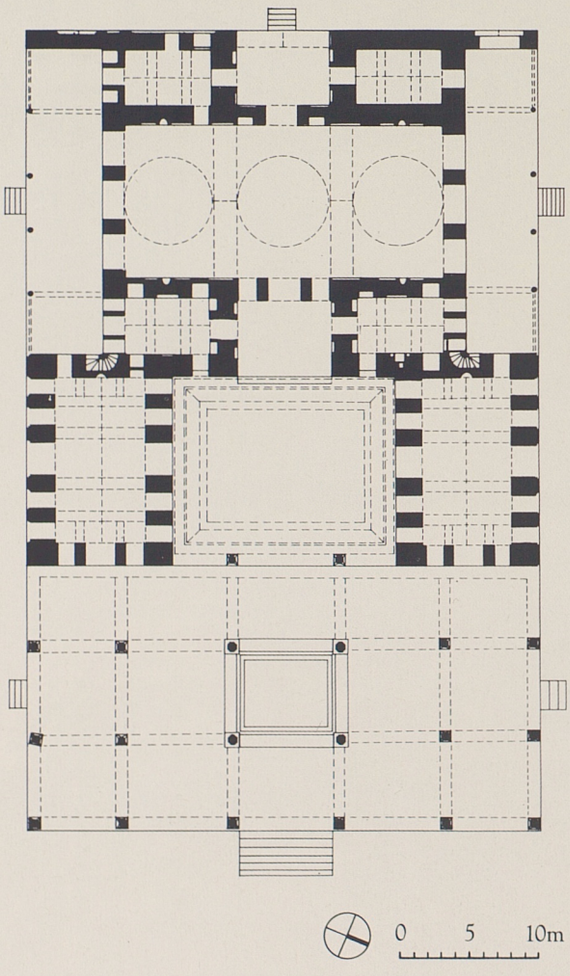

8


9


10



11

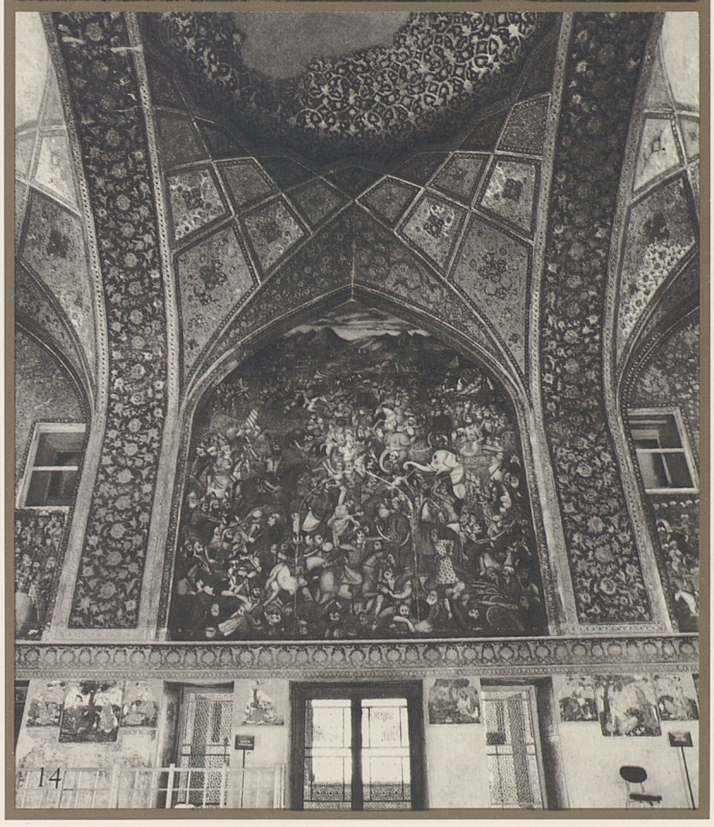


12

Chehel Sutun. The Chehel Sutun was part of the restoration programme begun simultaneously with the Ali Qapu. Built during the seventeenth century in three phases, the pavilion consists of a great reception hall flanked by east and west *eyvans*, a south *eyvan* with accompanying rooms and the later great *talar* with its twenty pillars. The hundreds of metres of painted decoration required major restoration because of over-

11. Chehel Sutun. West facade reflected in its rectangular pool.
12. Chehel Sutun. Plan of pavilion without its reflecting pool.
13. Chehel Sutun. Restored south facade and eyvan with the rebuilt upper balcony and newly replaced porch.
14. The program of restoring the painted surfaces of the Chehel Sutun started with the decorative program of the side rooms and the lower panels of the main hall.

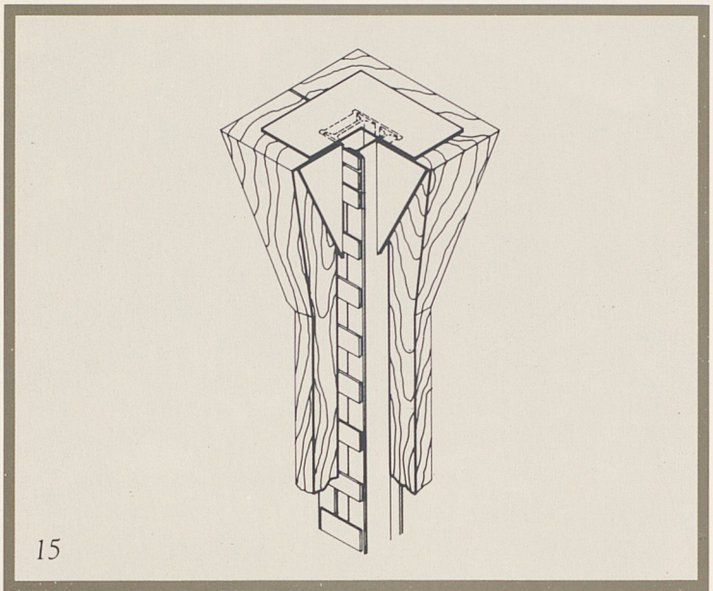
13



14

painting, water infiltration, smoke damage, and architectural modification. Initially, the Iranian authorities were most interested in restoring these surfaces, but soon it became clear that the structure had to be stabilised first. The tall and slender (13 metres high and 40 to 60 centimetres in diameter) wooden columns of the *talar* were treated for parasites and reinforced by the insertion of steel beams. Metal tie rods and concrete supports further consolidated the structure of the building. New wooden frames and grating, built on carefully researched original patterns, were installed in the openings. The restoration of the paintings in the pavilion has brought to light the richness and monumentality of the seventeenth-century Isfahan school of painting best known through the master Riza-i ʿAbbasi.

15. Structural reconstruction drawing for Chehel Sutun's wooden columns. All columns had to be reinforced with steel beams.
16. Chehel Sutun. The eves and ceiling of the main and side porches required considerable surface restoration.

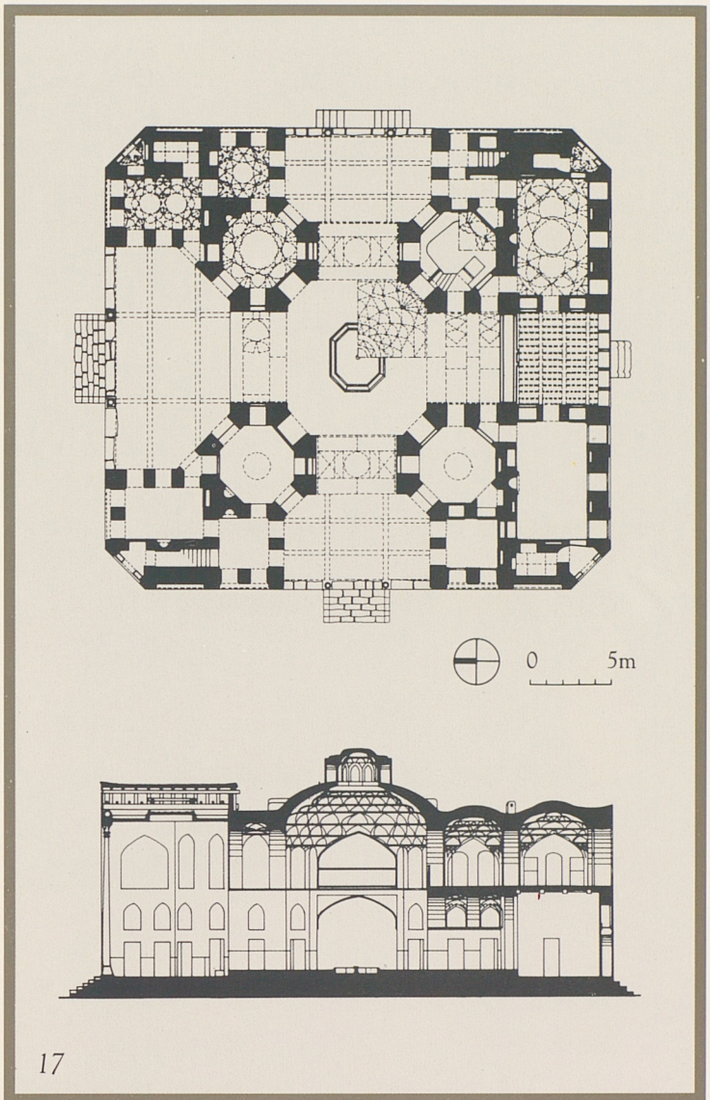


15

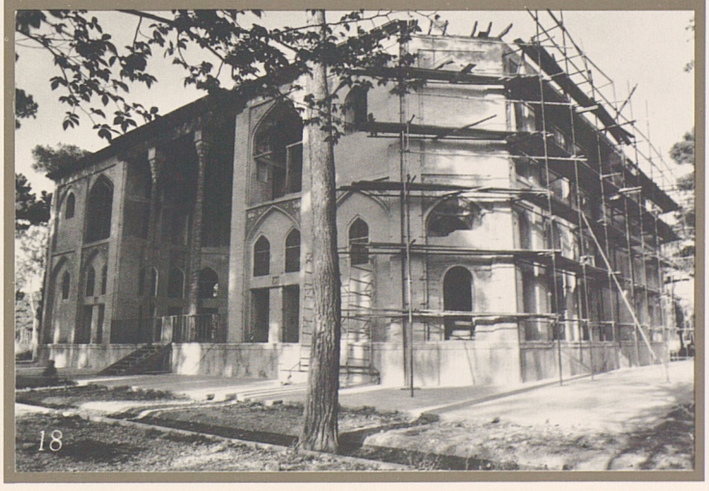
16

Hasht Behesht. The Hasht Behesht became government property only in the late 1960's so work was slow in beginning there. It had been a private residence up to that time and had been substantially altered in the nineteenth century. It was consolidated structurally, and the nineteenth-century accretions were for the most part removed. The full beauty of the

17. Plan of Hasht Behesht, ground level and section.
18. Hasht Behest under restoration. View of southeast corner.
19. Hasht Behest. Room on the second floor facing south, the muqarnas ceiling fully restored.



17



18

pavilion was then revealed, with its Safavid ceilings, chimneys, and wall decoration. These were cleaned and restored; wood railings and gratings were installed. In this last building, the newly trained Iranian experts assumed much of the responsibility for restoration.

Finally a concerted attempt was made to incorporate both pavilions into an archaeological park. The Chehel Sutun became the nucleus of restoration for neighbouring historical buildings such as the Talar Ashraf, the Qajar Tower and an important Safavid bath. The area around the Hasht Behesht was prepared for a park. And four years later, a comprehensive urban planning and design project was commissioned.

Replicability. From the Isfahan restoration programme, the newly trained work force and the ISMEO experts moved to other buildings in Isfahan, Linjan, and Barsian. NOCHMI moved its technicians to other regions in Iran, and there they began to work with the methods learned during the programme in Isfahan. Departments of Restoration were established in the National University of Iran and the Farabi University of Isfahan.

The programme could be used as a guide for restoration programmes in neighbouring countries where national services for the restoration of monuments have been founded quite recently and where skills are rare or inadequately developed.

19